

United States Patent [19]
Mills

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[54] HOSEL-LESS WOOD TYPE GOLF CLUB

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Related U.S. Application Data

[62] Division of Ser. No. 74,656, Sept. 23, 1970, Pat. No.
3,759,517.

[52] U.S. Cl. 273/80.2, 273/167 K, 273/174

[51] Int. Cl. A63b 53/02

[58] Field of Search 273/77 R, 80.2-80.8,
273/167-175

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Primary Examiner—Anton O. Oechslie

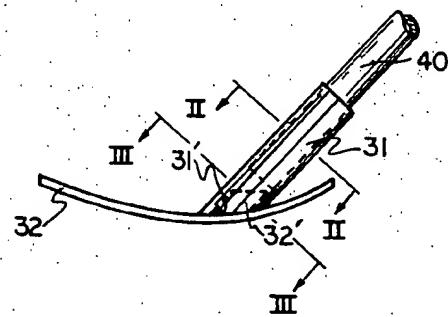
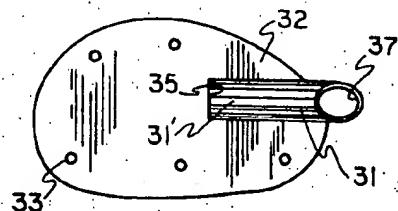
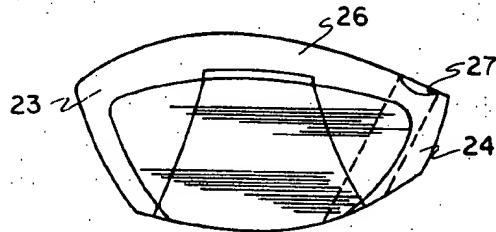
Assistant Examiner—Richard J. Apley

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[57] ABSTRACT

A wood type golf club having a club head with a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, the club head having a shaft receiving opening in the top surface at said heel portion and said top surface being a continuation of the general contour of the club head from the toe to the heel portions. The club head is provided on its bottom surface with a sole plate which is associated with a shaft retainer that is received in the shaft receiving opening in the club head. A shaft is received in the shaft retainer and secured therein.

12 Claims, 13 Drawing Figures



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SHEET 1 OF 2

PRIOR ART

15 →

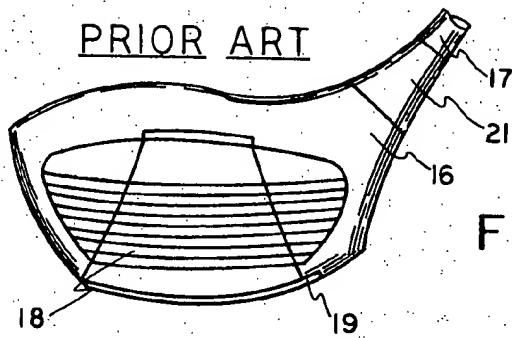


FIG. 1

20
23
22
25

26

24

FIG. 2

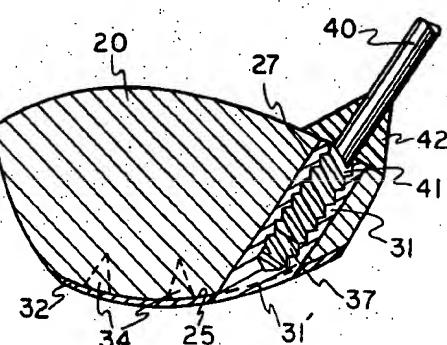


FIG. 3

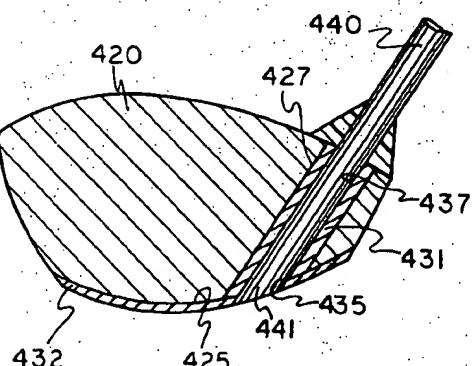


FIG. 4

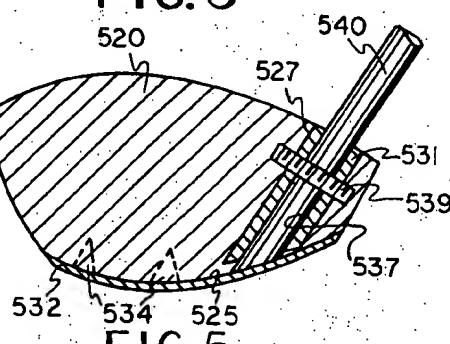


FIG. 5

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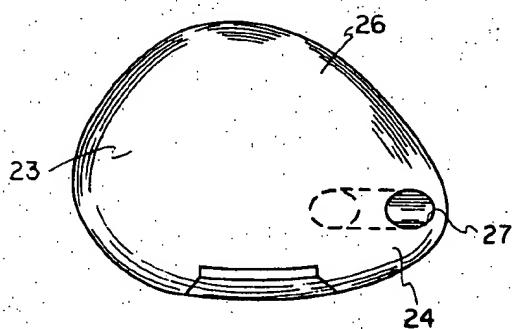


FIG. 6

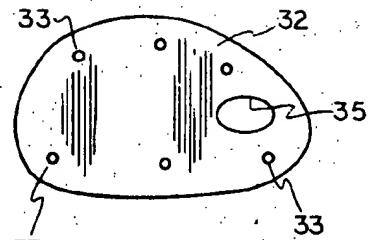


FIG. 9

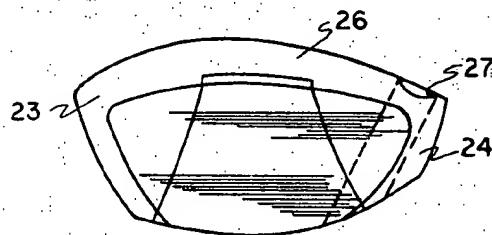


FIG. 7

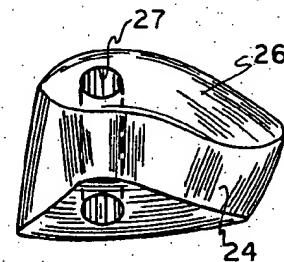


FIG. 8

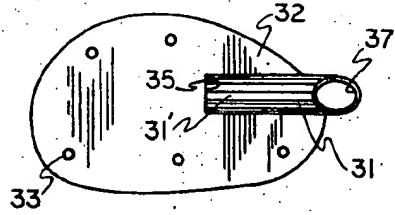


FIG. 10



FIG. 13A

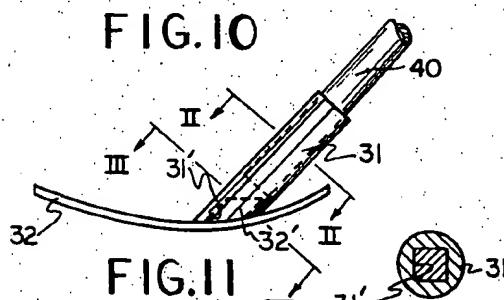


FIG. 11

FIG. 12

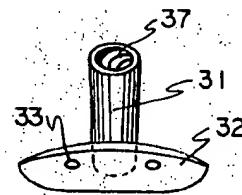


FIG. 13

HOSEL-LESS WOOD TYPE GOLF CLUB

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a division of an application filed on Sept. 23, 1970, entitled Hosel-Less Wood Type Golf Club, Ser. No. 74,656, now U.S. Pat. No. 3,759,517.

BACKGROUND OF THE INVENTION

Golf club design and manufacturing techniques have continued to improve throughout the years from the old wooden clubs employing a wood head and a wood shaft secured thereto to today's solid or laminated club head with a light metal alloy shaft or the like secured thereto. These clubs have been continually improved to provide more durable clubs, while aero-dynamics has been given great consideration in club head design to improve efficiency of the clubs. Moreover, clubs are now custom made for the individual to provide proper weight, shaft flexibility, shaft length, and the like.

Other than a streamlined design, however, club head design has not progressed materially. Instead, club head design has become accepted as a standard, and developmental efforts have been directed to materials of construction. As set forth in the above referred to parent application, there is tremendous advantage to be had in removing the hosel area from the wood-type golf clubs. The term wood-type golf club does not necessarily refer to materials of construction, but to a type of golf club having an enlarged club head as opposed to a blade-type club head as is found in golf irons and putters.

The hosel area of the club head is that area on the club head that extends upwardly therefrom at the heel and, in some manner, receives the shaft. Removal of the hosel area has resulted in improvement in several areas. First, a substantial reduction is realized in the amount of wood or other material required to produce the club head. Secondly, the process for manipulating the raw materials during the manufacture of the club head is both shortened and simplified. Thirdly, removal of the hosel area from the club head greatly lessens the tendency of the club to develop torque during swinging, the result of which reduces the tendency of the club to twist out of the desired path of travel. Hence, the chances for the golfer to improve his game are greatly enhanced. Further, removal of the hosel area has directly attributed to improvement of the efficiency, i.e., distance obtained by the golf club during use. A further very important advantage is the fact that by removal of the hosel area from the club head, club head design and club assembly techniques may now expand to horizons heretofore unknown.

The parent application, in addition to teaching the hosel-less club head, discloses a sole plate and shaft retainer as are taught herein. The parent application, however, teaches the shaft retainer to be integral with or secured to the inner face of the sole plate while the instant application teaches an association therebetween.

The present invention thus extends beyond the original invention to provide a wood-type golf club having a club head with improved aerodynamic properties, all of the advantages discussed above with respect to the golf club disclosed and claimed in the parent applica-

tion and different assembly techniques. It has now been determined that it is not necessary to secure the shaft retainer to the inner face of the sole plate. Instead, various and sundry arrangements may be employed wherein the shaft retainer is associated with the sole plate.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a wood-type golf club having a club head with the hosel area removed and in which the shaft is attached to the club head by a shaft retainer-sole plate arrangement.

A further object of the present invention is to provide a wood-type golf club having a club head to which a shaft is secured at a heel portion within a shaft retainer where the shaft retainer is associated with a sole plate.

Still further, another object of the present invention is to provide a wood-type golf club which develops substantially less torque than conventional golf clubs.

Still further, another object of the present invention is to provide a golf club which permits a vast expansion in the area of club head design and improve the manufacturing process for the club head.

Generally speaking, the wood-type golf club of the present invention comprises a club head having a frontal striking surface, toe and heel portions, a bottom surface, and a top surface, said club head further defining a shaft receiving opening on said top surface at said heel portion, said top surface being a continuation of the general contour of the club head from said toe to said heel portions; a sole plate secured to said bottom surface; a shaft retainer associated with said sole plate and being received in said shaft receiving opening, and a shaft received in said shaft receiving opening and secured therein.

More specifically, the present invention is directed to a golf club having a club head that has no upward projection or neck in which a shaft is normally received. The club head instead receives a shaft retainer in the heel portion thereof with the shaft retainer being operatively associated with a sole plate secured to the bottom surface of the club head. The shaft retainer is not integrally secured to the sole plate by welding, brazing, or the like, but is merely associated with the sole plate in some fashion.

One preferred means of association between the shaft retainer and the sole plate is to provide a sole plate having an opening therein in which a mating section of the shaft or shaft retainer resides so as to preclude rotation thereof. As such, the opening in the sole plate generally is non-circular and preferably is square, triangular, oval, or the like. In fact, the opening could be of any shape. If a circular opening is provided, then though the connection will provide additional solidarity to the shaft-club head connection, the shaft or shaft retainer should additionally be pinned or otherwise secured within the shaft retainer receiving opening against rotation. Hence, when the lower end of the shaft or shaft retainer is received within a non-circular shaped opening in the sole plate, the shaft will be precluded from rotation with respect to the sole plate in the event the shaft, once secured within the shaft retainer is twisted.

Many methods are available for securing the shaft retainer within the club head and for securing the shaft within the shaft retainer. For example, suitable adhe-

sives such as epoxies may be employed alone or in conjunction with pins or screws. Threaded connection may also be employed and is preferred for securement between the shaft and the shaft retainer. In other words, any suitable means may be employed that will securely unite the various members of the club.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of a conventional golf club employing a club head having a normal hosel and a sole plate affixed to the bottom of the club.

FIG. 2 is a front elevational view of a portion of a golf club according to the teachings of the present invention.

FIG. 3 is a sectional view of a golf club produced according to the teachings of the present invention.

FIG. 4 is a sectional view of a portion of a golf club showing a further embodiment of the present invention.

FIG. 5 is a sectional view of a portion of a golf club showing another embodiment of the present invention.

FIG. 6 is a top plan view of a club head having no hosel according to the teachings of the present invention.

FIG. 7 is a front elevational view of a club head having no hosel according to the teachings of the present invention.

FIG. 8 is an end elevational view of a club head having no hosel according to the teachings of the present invention.

FIG. 9 is a top plan view of a sole plate according to the teachings of the present invention.

FIG. 10 is a top plan view of a sole plate having a shaft retainer associated therewith according to the teachings of the present invention.

FIG. 11 is a side elevational view of a sole plate having a shaft retainer associated therewith according to a further embodiment of the present invention.

FIG. 12 is a top cross sectional view of a golf club shaft retainer according to one embodiment of the present invention taken along a line II-II of FIG. 11.

FIG. 13 is a rear elevational view of a sole plate having a four way roll and having a shaft retainer associated therewith.

FIG. 13A is a cross sectional view of a golf club shaft and shaft retainer according to an embodiment of the present invention taken along a line III-III of FIG. 11.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

Referring to FIG. 1, there is shown a conventional wood-type golf club as shown in the prior art, generally indicated as 15. This conventional golf club has a hosel 16 that has been formed thereon to receive a shaft 17. Additionally, a frontal striking area 18 and a sole plate 19 are also shown. In the conventional sense, the sole plate 19 serves no purpose other than reducing wear on the bottom surface of the club head. A hole must be drilled into the hosel 16 of the conventional club head 15 into which the shaft 17 is inserted. The connection therefore is between the wooden club head 15 and metal shaft 17 which can be split, broken or worn in the hosel area which has only a thin shell of wood therearound. Such wear and tear accounts for some 95 per

cent of the damage that occurs to golf clubs. Further, a plastic sleeve or ferrule 21 generally overlies the hosel and conforms to the taper of the hosel or provides a continuation of the taper of the hosel. Sleeve 21, in some cases, is, however, replaced with a thread wrapping.

FIG. 2 comparatively illustrates a golf club produced according to the present invention to that of the prior art as shown in FIG. 1. The golf club of the present invention is provided with a club head generally indicated as 20 that has no pre-formed hosel area. Instead, club head 20 is provided with a frontal striking surface 22, a toe portion 23, a heel portion 24, a bottom surface 25 and a top surface 26. As can best be seen in FIGS. 6, 7 and 8, the club head according to the present invention has a shaft opening 27 in the top surface 26. Note, however, that the top surface does not turn upwardly to form a hosel, but is a continuation of the general contour of the club head from the toe portion 23 to the heel portion 24.

Removal of the hosel or neck area of the club head 20 thus substantially reduces the amount of wood or other desired material that is required to produce the club head. Moreover, historically, golf club manufacturers have been limited in design and manufacturing techniques by the hosel or neck. Now, however, club head design may expand into horizons heretofore unknown. For example, a symmetrical club head may be manufactured which would permit use of the club head for the manufacture of a right hand or left hand club. The shaft receiving opening would just be drilled on the opposite side of the club head for a left hand club.

A preferred embodiment of the present invention is shown in FIG. 3. The club head 20 is provided with a shaft receiving opening 27 extending therethrough at an angle. A sole plate 32, as may best be seen in FIG. 9, has a plurality of fastening member openings 33 therein and a shaft retainer receiving opening 35 therein. Sole plate 32 is secured to the bottom surface 25 of club head 20 by a plurality of fastening members 34 such as screws which are received in openings 33. A shaft retainer 31 is received in opening 27 of club head 20 and is secured therein in any suitable manner such as by adhesives. Shaft retainer 31 is shown to have internal threads 37 extending therealong. For a right hand club, left hand threads 37 should be employed and for a left hand club, right hand threads 37 should be employed.

Sole plate 32 has a receiving opening 35 as set forth above. Opening 35 preferably has a non-circular shape. Likewise, the bottom cross section 31' of shaft retainer 31 should have a non-circular or other shape that matches and snugly fits opening 35. A tight fit between the shaft retainer 31 and opening 35 of sole plate 32 or shaft 40 (as described hereinafter) and opening 35 is preferred. Hence, when shaft retainer 31 is in place, the bottom 31' thereof will reside within and mate with opening 35 of sole plate 32. As such, when sole plate 32 is secured to the bottom surface 25 of club head 20, relative rotation between shaft retainer 31 and club head 20 is precluded. While any shape is suitable, a circular shape is not as suitable for opening 35 and bottom 31' of shaft retainer 31, as are an oval, triangular or rectangular shape which are preferred. A shaft 40 is received within shaft retainer 31 as shown in FIG. 3. Shaft 40 is shown to have threads 41 along the lower end thereof. Threads 41 of shaft 40 are received by

threads 37 of shaft retainer 31 so as to secure shaft 40 to club head 20. As mentioned above, however, any suitable means may be employed to secure shaft 40 to club head 20. To finish the golf club, a metal or plastic ferrule, washer or the like 42 may be placed over shaft 40 and secured to club head 20 around shaft receiving opening 27.

A further embodiment of the present invention is illustrated in FIG. 4. A club head 420 is shown having a shaft receiving opening 427 therein, and a sole plate 432 secured to the bottom surface 425 thereof. The receiving opening 435 in sole plate 432 receives a like shaped end 441 of a shaft 440 instead of a shaft retainer 431. Opening 435 in sole plate 432 and lower end 441 of shaft 440 may be any shape as discussed above, but are preferably non-circular in shape as to prevent relative rotation between shaft 440 and club head 420. Hence, shaft retainer 431 merely abuts sole plate 432 and is not secured thereto, though it is not necessary for shaft retainer 431 to even abut sole plate 432. Shaft retainer 431 is shown to have a smooth inner surface 437 while shaft 440 is likewise smooth along its length. Hence, shaft 440 may be secured within shaft retainer 431 by adhesive, pins or the like.

FIG. 5 shows still a further embodiment of the present invention. Club head 520 is shown to have a shaft receiving opening 527 therein. A sole plate 532 is shown secured to the bottom surface 525 of club head 520 by a plurality of screws 534. A shaft retainer 531 is received within opening 527 of club head 520 and suitably secured therein. Shaft retainer 531 is shown to have a smooth inner surface 537 in which a shaft 540 resides. Shaft 540 is secured within shaft retainer 531 and club head 520 by a countersunk pin or screw 539. Screw 539 is headless and after being countersunk, the remaining space therebehind is filled in with a suitable filler to smooth the surface of the club head. In FIG. 5, shaft 540 is illustrated as passing through retainer 531 and abutting sole plate 532. There may, however, be no connection between sole plate 532 and shaft 540 or retainer 531. As such, sole plate 532 prevents club head 520 from splitting in the event of shock thereto.

As may be seen in FIGS. 11 and 12 13A, the sole plate 32 may have a projection 32' extending upwardly therefrom. Projection 32' is of a shape that mates with a like shaped inner surface 31' of shaft retainer 31 to prevent relative rotation therebetween. A shaft 40 is further shown secured in shaft retainer 31. Obviously, as described throughout the specification, the connection between shaft 40 and shaft retainer 31 may follow the teachings set forth herein. Furthermore, the inner mating surface 31' of shaft retainer 31 is only required at the lower end of the shaft retainer 31, though if desired, can extend throughout the entire length of retainer 31. As such, the lower end only of retainer 31 is preferred to mate with projection 32' while the upper end of shaft retainer 31 has an internal configuration as desired. Shaft retainer 31 may thus receive a shaft 40 in any suitable fashion, and may be threaded, or may be of a particular shape. Moreover, the lower end of the shaft that is received in the shaft retainer does not dictate the cross section of the remainder of the shaft. In other words, shaft shape, securing within the shaft retainer and the like would follow the general definitions and statements concerning same presented throughout the specification. Further sole plate 32 may have any shape or roll according to the desired shape

wanted for the bottom of the club head. It is, however, an advantage for the woods, especially the fairway woods, to employ a sole plate having a four-way roll as shown in FIG. 13.

Removal of the hosel or neck area from the club head also removes weight from the heel portion of the club head. Hence, weight may now be better distributed behind the hitting area of the club head to improve the balance of the club. Further, the golf clubs produced according to the teachings of the present invention will also be much easier to repair in the event of damage thereto than the presently available clubs.

Having described the present invention in detail, it is obvious that one skilled in the art will be able to make modifications and adaptations thereto without departing from the scope of the invention. Accordingly, the scope of the present invention should be governed by the claims appended hereto.

What is claimed is:

1. A wood type golf club comprising:

- a. a club head having a frontal striking surface, toe and heel portions, a bottom surface and a top surface, said club head defining a shaft receiving opening on said top surface at said heel portion, said top surface having a continuous generally convex contour from said toe to said heel portions;
- b. a sole plate secured to the bottom of said club head, said sole plate having a projection of a predetermined shape secured thereto and extending upwardly therefrom;
- c. a shaft retainer received in said club head, said shaft retainer having a bottom inner surface of a predetermined shape residing around said projection, whereby rotation of said shaft retainer is precluded; and
- d. a shaft received in said shaft retainer and secured therein.

2. A wood type golf club as defined in claim 1

40 wherein said sole plate substantially covers the bottom of the club head.

3. A wood type golf club as defined in claim 1 wherein said projection and said bottom inner surface of the shaft retainer residing therearound are rectangular in shape.

4. A wood type golf club as defined in claim 1 wherein said projection and the bottom inner surface of the shaft retainer residing therearound are oval in shape.

5. A wood type golf club as defined in claim 1 wherein said projection and the bottom inner surface of the shaft retainer residing therearound are triangular in shape.

6. A wood type golf club as defined in claim 1 wherein the shaft is adhesively secured in said shaft retainer.

7. A wood type golf club as defined in claim 6 wherein the adhesive is an epoxy.

8. A wood type golf club as defined in claim 1 wherein said shaft retainer is provided with threads internally thereof and said shaft has complementary external threads adjacent the lower end thereof, whereby said shaft is threadedly secured within said shaft retainer.

9. A wood type golf club as defined in claim 8 wherein the threads on said shaft are left hand threads.

10. A wood type golf club as defined in claim 8 wherein the threads on said shaft are right hand threads.

11. A wood type golf club as defined in claim 1 wherein said shaft is secured within said shaft retainer

by a pin.

12. A wood type golf club as defined in claim 1 comprising further a member received around said shaft and residing atop and being secured to said club head.
* * * * *